

REMARKS

Favorable consideration is respectfully requested in view of the above amendments and the following remarks.

I. STATUS OF CLAIMS AND SUPPORT FOR AMENDMENTS

Upon entry of this amendment, claims 1-5, 8-17, and 22-30 will be pending in this application. Claims 6, 7, and 18-21 have been canceled. Claims 1-5, 8-17 and 22-29 are currently being examined on the merits.

Applicants have amended claim 1 to recite that the wear-resistant hard material component (A) contains a total amount of carbide forming additives of 3-20 wt%, based upon the weight of the powdered component. Support for this amendment can be found in the specification at page 6, line 32 to page 7, line 8.

Applicants have amended claim 14 to correct a typographical error.

New claim 30 is supported by the specification at page 7, lines 18-20.

No new matter has been added.

II. REJECTION UNDER 35 U.S.C. § 103(a)

In paragraph 3 of the Office action, the Examiner has rejected claims 1-5, 8-17, and 22-29 under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 4,869,974 (Oskarsson et al.) in view of U.S. Patent No. 5,290,507 (Runkle). Applicant respectfully traverses this rejection for the reasons given below.

Applicant has explained why HIP and CIP are not equivalent processes, particularly in the context of Applicant's claimed process in the Amendment and Response filed March 12, 2008, the contents of which are incorporated herein by reference.

Despite Applicant's comments on the differences between HIP and CIP, the Examiner continues to assert that CIP and HIP are "functionally equivalent in terms of densifying powders." Office action dated May 29, 2008 at page 4. CIP and HIP are not functionally equivalent in densifying powders, as the Examiner alleges, for the reasons previously given by Applicant, namely that CIP increases the density of a powder, typically from about 55-65% to a density of about 75-85% (see, e.g., a mechanical engineering or materials engineering handbook, such as the ASM Handbook). The result of the CIP process is a compacted powder, having individual particulates that are held together by friction, shape locking, and other mechanical means, but containing significant void spaces between them. By contrast, HIP increases the density of a powder from about 55-65% to a density of around 100%, i.e., fully densified. The result of the HIP process is a material that is comparable to a cast or forged material.

Applicant respectfully submits that the Examiner has not explained why he believes that HIP and CIP are equivalent despite this substantial difference in the ability of each process to densify powders, other than to make the conclusory statement that the processes are equivalent in this regard. Even the MPEP recognizes that

The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR* noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Court quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), stated that "[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR*, 550 U.S. at ___, 82 USPQ2d at 1396.

MPEP § 2141 (emphasis added). Applicant has explained why the Examiner is factually wrong in concluding that CIP and HIP are equivalent with respect to densifying particulates. The Examiner has responded with nothing but a conclusory statement to the contrary. Applicant respectfully submits that this is insufficient to establish a *prima facie* case of obviousness.

In addition, the Examiner asserts:

Oskarsson et al. ('974) do not teach away from using HIP by stating that CIP is preferred to produce a powder blank (col. 4, lines 33-38) without excluding HIP; new active surfaces would also be created when a hot-isostatically-pressed part is extruded, because the HIP bonds the particles thermally and mechanically while the CIP bonds the particles mechanically only, wherein the particles have not lost their integrity in both HIP and CIP; and the anisotropy within the layers of the hard material of Oskarsson et al. ('974) will be reduced by HIP, which is desirable for the lamellar structure of Oskarsson et al. ('974). It is further noted that it is common practice in the art to extrude the hot-isostatically pressed parts.

Office action dated May 29, 2008 at page 4 (emphasis added).

First, the underlined sections of the quoted passage above are statements of fact. Yet none of these statements are supported by any citation to Oskarsson et al. or Runkle. None of the statements are supported by any citation to any other reference. None of the statements are supported by any declaration under 37 C.F.R. § 1.104(d)(2) setting forth the Examiner's personal knowledge, and the basis for that knowledge. In effect, the Examiner has dismissed Applicants' arguments based on unsupported factual allegations. Applicants respectfully submit that even the MPEP does not sanction such an approach to examination.

To the contrary, with regard to the Examiner's statement of what is "common practice," the MPEP states:

Official notice without documentary evidence to support an examiner's conclusion is permissible only in some circumstances. While "official notice" may be relied on, these circumstances should be rare when an application is under final rejection or action under 37 CFR 1.113. Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known. As noted by the court in *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970), the notice of facts beyond the record which may be taken by the examiner must be "capable of such instant and unquestionable demonstration as to defy dispute" (citing *In re Knapp Monarch Co.*, 296 F.2d 230, 132 USPQ 6 (CCPA 1961)). In *Ahlert*, the court held that the Board properly took judicial notice that "it is old to adjust intensity of a flame in accordance with the heat requirement." See also *In re Fox*, 471 F.2d 1405, 1407, 176 USPQ 340, 341 (CCPA 1973) (the court took "judicial notice of the fact that tape recorders commonly erase tape automatically when new 'audio information' is recorded on a tape which already has a recording on it"). In appropriate circumstances, it might not be unreasonable to take official notice of the fact that it is desirable to make something faster, cheaper, better, or stronger without the specific support of documentary evidence. Furthermore, it might not be unreasonable for the examiner in a first Office action to take official notice of facts by asserting that certain limitations in a dependent claim are old and well known expedients in the art without the support of documentary evidence provided the facts so noticed are of notorious character and serve only to "fill in the gaps" which might exist in the evidentiary showing made by the examiner to support a particular ground of rejection. *In re Zurko*, 258 F.3d 1379, 1385, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001); *Ahlert*, 424 F.2d at 1092, 165 USPQ at 421.

It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art. *In re Ahlert*, 424 F.2d at 1091, 165 USPQ at 420-21. See also *In re Grose*, 592 F.2d 1161, 1167-68, 201 USPQ 57, 63 (CCPA 1979) ("[W]hen the PTO seeks to rely upon a chemical theory, in establishing a prima facie case of obviousness, it must provide evidentiary support for the existence and meaning of that theory."); *In re Eynde*, 480 F.2d 1364, 1370, 178 USPQ 470, 474 (CCPA 1973) ("[W]e reject the notion that judicial or administrative notice may be taken of the state of the art. The facts constituting the state

of the art are normally subject to the possibility of rational disagreement among reasonable men and are not amenable to the taking of such notice.").

MPEP § 2144.03(A) (emphasis added). Applicants respectfully submit that the Examiner has failed to explain why his factual statements are capable of instant and unquestionable demonstration as being well-known, rather than assertions of technical facts in areas of esoteric technology or specific knowledge of the prior art. Applicants respectfully submit that the Examiner's assertions are of the latter variety, and thus inappropriate for taking Official notice. Moreover, if the Examiner's statements were capable of such unquestionable demonstration as being well known, then it should be no burden on the Examiner to cite a reference supporting his position.

Second, as Applicants have previously explained, the use of hot isostatic pressing in the claimed process prior to hot working results in the formation of a fully dense material which can be more easily and reliably hot worked into a given shape because the fully densified material has already formed metallurgical bonds between ductile and hard materials. Cold isostatic pressing, by contrast, does not produce densification of materials, so that the resulting products do not have high strength.

The most significant distinction between materials that have been prepared by HIP and those that have been prepared by CIP with respect to the claimed invention is that materials that have been prepared by CIP cannot be hot worked. Their porous structure causes them to break apart during hot working. Often, materials that have been prepared by CIP cannot be easily moved without breaking apart due to their porous structure. By contrast, materials that have been prepared by HIP can be easily moved, and can be hot worked, because HIP produces a fully densified

material. Indeed, CIP can be used as a preliminary process step for HIP. The converse, however, is not true. HIP cannot serve as a preliminary step for CIP because the material resulting from HIP is fully densified.

Moreover, the poor strength provided by CIP essentially requires the use of hot extrusion, and excludes the use of the other hot working techniques, such as hot rolling, open forging, such as open die forging, radial forging, etc. Excluding these hot working techniques by the use of CIP results in a more expensive process, because hot extrusion is more expensive than hot rolling or forging. In addition, the need for using hot extrusion imposes significant size limitations compared to a process using hot rolling or forging.

In addition to these reasons, HIP compaction in the claimed process is not equivalent to CIP because of the benefits that Applicants have found HIP to provide in the context of the claimed process, and which CIP would not provide. For example, the use of HIP in the claimed process allows the use of lower amounts of the wear-resistant hard material (A), and also allows the use of this material in larger particle sizes. In addition, the claimed process allows the use of either or both wear-resistant hard material component (A) or tough material component (B) in non-particulate form, i.e., in the form of two solid parts that can be bonded together by HIP before hot working. In Oskarsson et al., the hard material must be in powdered form, and the process disclosed therein does not permit the use of solid parts.

Moreover, Runkle discloses a process for preparing material that does not include hot working the material after HIP to form the final shape and internal structure of the material. This is significant because in the claimed process, the internal distribution and structure of materials A and B are primarily determined in the

hot working stage. This occurs because of the use of HIP in the process prior to hot working; this allows the hot working process to more effectively determine this internal distribution and structure.

For at least the reasons given above, HIP and CIP are not equivalent, as alleged by the Examiner, in the context of Applicants' claimed process, and a worker of ordinary skill in this art would not have combined the reference teachings in the manner that the Examiner has suggested for this reason.

Additionally, even if a worker of ordinary skill in the art were to combine the teachings of Runkle with those of Oskarsson et al., the claimed process would not be obtained. The material produced by the Runkle process is macroscopically monolithic, in that it contains a single phase of material that is microcomposite in nature. By contrast, the claimed process produces a bimetallic material that contains two different materials, A and B, and forms a macroscopic composite.

For at least the reasons given above, the Examiner has failed to establish a *prima facie* case of obviousness, and this rejection should therefore be withdrawn.

CONCLUSION

This application is believed to be in condition for allowance for the reasons given above. Should there be any remaining issues pertaining to this application, the Examiner is respectfully requested to contact Applicants' undersigned representative at the telephone number indicated below.

Respectfully submitted,

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Date: August 29, 2008

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